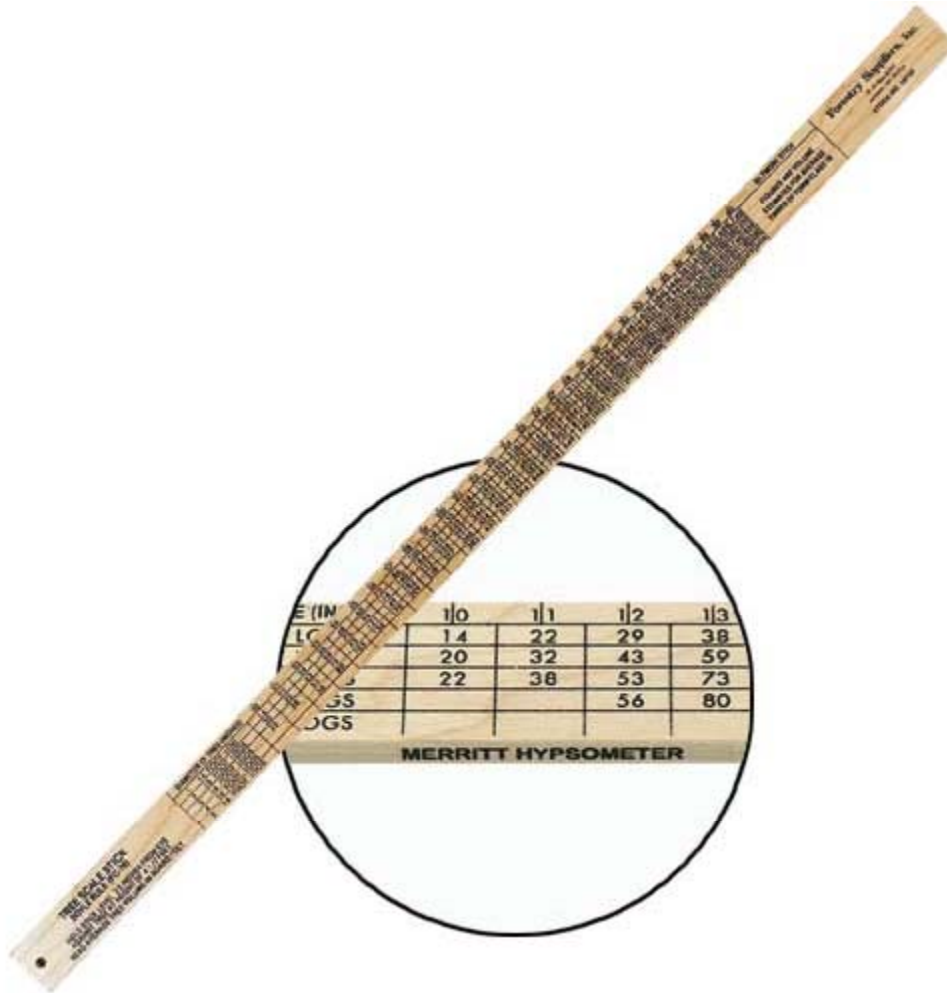
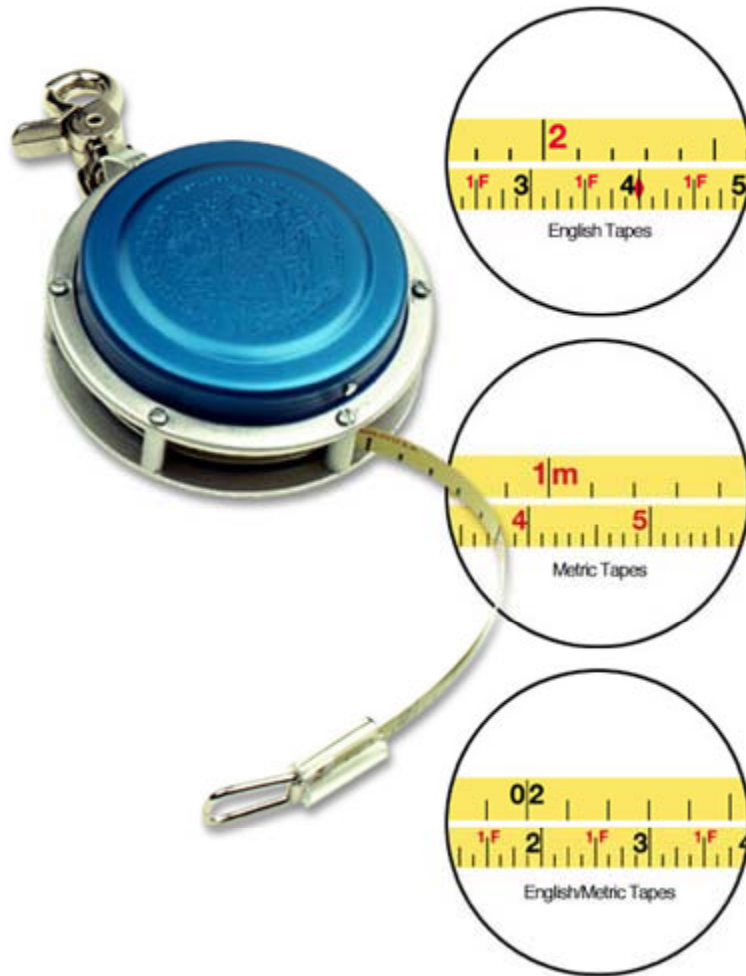


New Mexico FFA Forestry Equipment and Chainsaw Parts ID Study Guide



Tree stick – A hand-held measuring stick that measures tree diameter and tree height. It can be used to determine board foot volumes of logs and standing trees. Volume tables are printed on the stick.



Diameter/logger's tape – A tape measure specially graduated so that diameter may be read directly when the tape is placed around a tree stem or log. Some may also measure length or distance.



Increment borer – A tool used to take a small core from the bole of a tree to determine growth rate.



Bark gauge – A tool used for measuring bark thickness. It is used for accurate cruising and scaling measurements.



Tree caliper – An instrument used for determining tree and log diameters by measuring their rectangular projection on a straight graduated rule via two arms at right angles to the rule itself. One of them slides along the rule.



Pulaski forester axe – A tool used in firefighting that is a combination of a mattock, used for grubbing or trenching and an axe, used for chopping.



Stereoscope – A tool used to give aerial photographs a three-dimensional effect.



GPS receiver – This equipment works with satellites to give accurate map information.



Soil sampler – This tool is a hollow metal tube that is pushed into the soil, turned slightly and pulled from the ground to remove a core of soil.



Wedge prism – A point sampling instrument that is a tapered wedge of glass that bends or deflects light rays at a specific angle.



Relaskop – An instrument that can be used to measure stand basal area and tree height and diameter at any point up a tree bole. The relaskop works as a rangefinder, a clinometer, a dendrometer, an angle gauge, and a slope correction device.



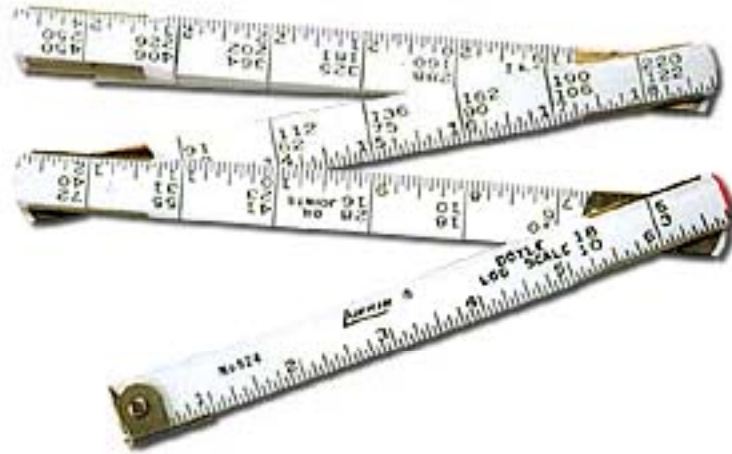
Staff compass – a large compass that can be placed on a staff or tripod and is used in surveying.



Hand compass – An instrument which indicates magnetic north. The essential parts of a compass are the magnet, usually in the form of a needle, which is balanced on a jeweled bearing or pivot, and a graduated circle with 360 degrees of azimuth or four 90 degree quadrants. The components are housed in a box or frame that has a sighting device with which to aim at the objective. It is used for orienting maps and determining direction.



Tree planting hoe or bar –
This tool is a long metal pole with a blade on the end and is used in planting trees.



Log rule – A wooden stick that has a table printed on it that is based on a diagram or mathematical formula used to estimate volume or product yield from logs and trees. The log rules that are used today are: Scribner is the common scale for pine; Doyle is the common hardwood scale; and the International $\frac{1}{4}$ " Rule best measures mill output, and is used less frequently than the other log scales. Not used to determine tree diameter or tree height.



Planimeter – This instrument is used to mechanically measure an area by tracing the perimeter on a plane surface. Typically used to estimate the size of an area from scale maps. It is the most accurate means of measuring areas, whether enclosed by straight lines or curved lines, directly from maps.





Surveying compass



Measuring wheel



Automatic level



Abney level

Survey instrument (some type) –
These are instruments that are
used when land is being surveyed.



Transit-Level



Theodolite



Hip chain – This is a measuring tool that attaches to a belt. A thread is attached to an object and as the person walks the thread is drawn from a spool attached to a counter inside a case, and the distance traveled is displayed on the odometer-type counter

Flagging – PVC vinyl or other material that is about an inch wide on rolls available in multiple colors and used in surveying, forestry, orienteering and landscaping.





Tree marking gun – A paint applicator used with tree marking paint to mark trees on a plot of land indicate whether to cut or to leave on a thinning site.





Clinometer – An instrument used for measuring the angle of an incline. It measures the vertical rise or fall from horizontal at a specified distance from the observer. They are used by construction workers to measure grade angles and by forestry workers to measure the height of trees.

Canthook – A pole with a clasp and extension toe ring attached to one end. It is used to roll and maneuver logs.



Chainsaw – A piece of equipment that is used to cut down trees, trim trees or cut downed trees into logs or firewood.





Safety hard hat –
Protective gear that is
worn on the head
when working in the
field.



Chainsaw chaps –
Protective gear that is worn over pants to protect the legs when operating a chainsaw.



Safety glasses –
Protective gear that is
worn over the eyes
when operating
equipment.



Altimeter – An instrument that measures the altitude of the land surface or of any object such as an airplane.





Tally meter – A device that is used to count animals or trees, take surveys, perform warehouse inventories, engineer surveys, etc. They can have one button or several so that more than one item at a time may be counted.



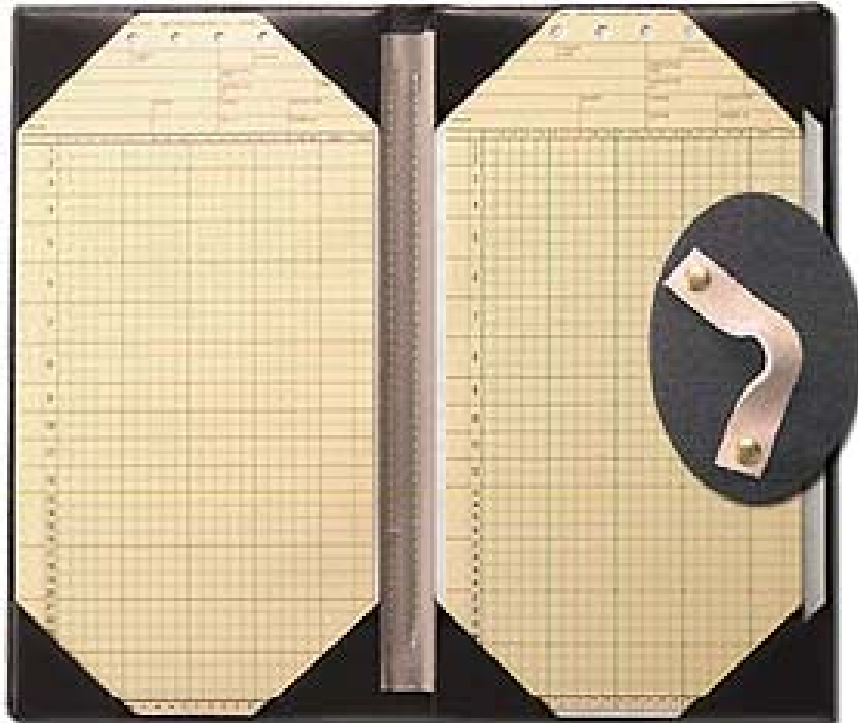
Fire rake – This tool is used to cut and remove small brush on the fireline during the suppression of wildfires.



Drip torch – A torch used to ignite fires for slash and brush disposal, roadside burning, agricultural clearing or backfiring.



Fire weather kit – Instruments used to take fire weather measurements in the field. Includes a sling psychrometer, a wind meter, a liquid-filled compass, a pencil, a psychrometric slide rule and a fire weather report board with forms.

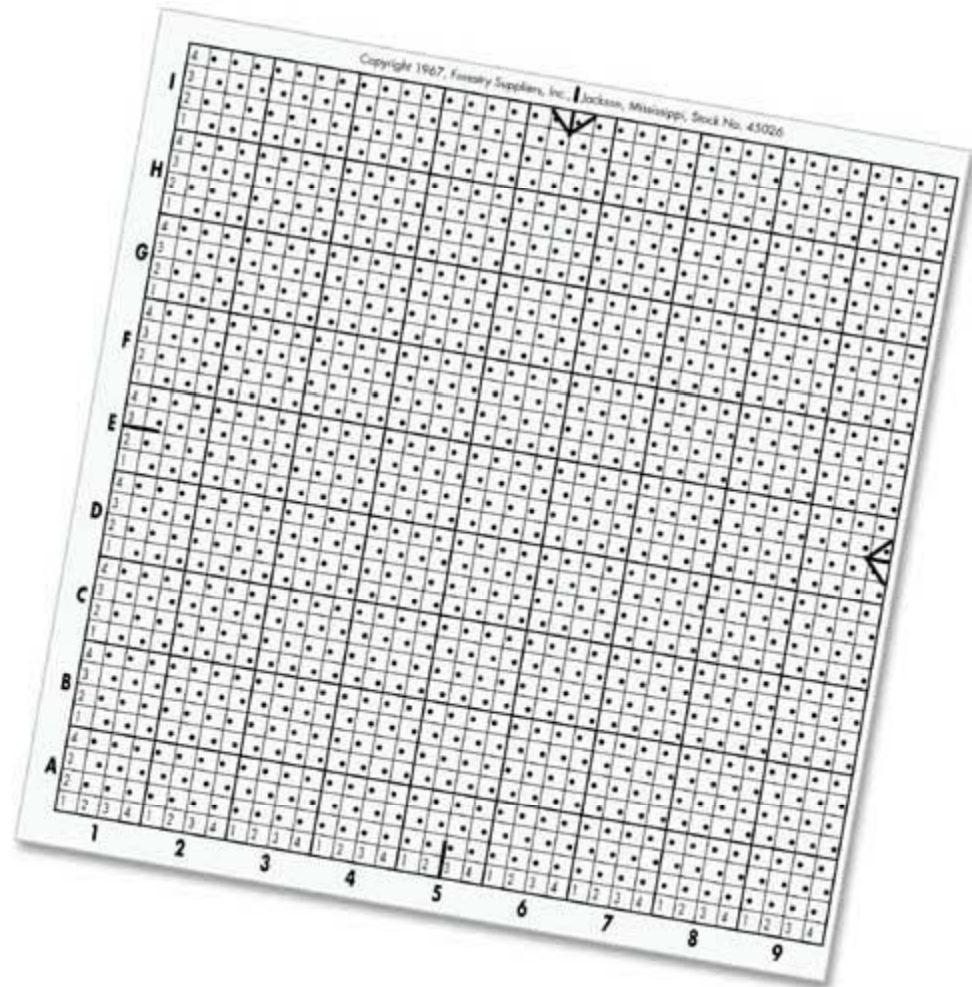


Tally book – A book of tally sheets used in tallying lumber and cruising timber.

Fire-swatter – A flap of rubber treated webbing riveted to a shank assembly attached to a hardwood handle used in fire suppression to smother grass fires.



Dot grid – A sheet of transparent plastic marked off in 1-inch squares which are subdivided into 16 squares. There are four dots in each small square, making a total of 64 equally spaced dots per square inch. The sheet is laid over a map or photo, and the dots are counted that fall within the boundaries of the area being estimated.



Backpack fire pump – A lightweight, collapsible backpack used to carry water to remote areas to aid in the suppression of wildland fires.





Plant press – Two pieces of wood or other material cut the same size that can be pressed together tightly with a strap, rope or elastic band. Plant specimens are placed between blotting material and placed in the press to be pressed and dried.



Flow/current meter – A device used to measure the flow or current of a moving body of water.

Soil test kit – This is used to conduct field tests on soil. Kits can determine the pH, nitrogen, phosphorus and potassium contents in soil samples.





Water sampler – A device used to take water samples from a stream, pond or lake.





Densiometer – This instrument estimates forest canopy coverage. It can measure forest overstory density from unobstructed sighting positions. The instrument uses a spherical-shaped reflector mirror engraved with a cross-shaped grid of 24 quarter inch squares. It is helpful when establishing spacing standards in forest thinning and determining light requirements for regeneration.

Water test kit – This is used to conduct field test on water. Kits can determine the dissolved oxygen, chlorine, nitrate, phosphate, iron and ammonia contents of the water.





pH meter – A device used to measure the pH of water or soil.





Hand lens/field microscope – A small magnifying glass that can be carried in a pocket and used in the field to magnify an object.

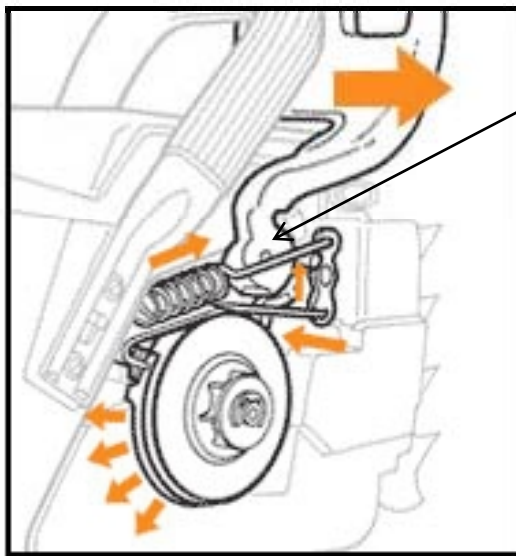




Twist lock - This is the lock for the carburetor box cover. It is labeled “W” in the picture.

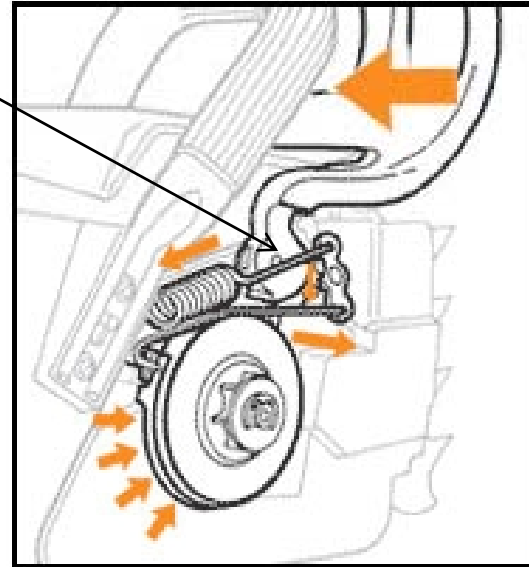


Carburetor adjusting screws –
These are used to fine tune the carburetor. These are labeled “B” in the picture.



When handguard is in forward position, brake band is engaged.

Chain brake



When front handguard is in the rearward position, brake band is disengaged.

Chain brake – A device to stop the rotation of the chain if activated in a kickback situation by the operator's hand or by inertia. Labeled



Muffler – Reduces engine exhaust noise and directs the exhaust gases. Labeled “S” in the picture.





Chain sprocket – The toothed wheel that drives the saw chain. It is found under the chain sprocket cover.



Chain sprocket cover – Covers the clutch and the sprocket. It is labeled “H” in the picture.



Chain catcher – Helps to reduce the risk of operator contact by a chain if it breaks or comes off the bar. Labeled “N” in the picture.



Chain tensioners –
Permits precise adjustment
of chain tension.



Guide bar – Supports and guides the saw chain. Labeled “Q” in the picture above.





Oilomatic saw chain – A loop consisting of cutters, tie straps and drive links that revolves around the guide bar and chain sprocket. Labeled “P” in the above picture.





Adjusting wheel – Permits precise adjustment of chain tension. Located where the arrow is pointing.



Handle of wingnut – Must be released to allow chain to be tensioned with adjusting wheel. Labeled M in the picture.



Oil filler cap – For opening and closing the oil tank. Located where the arrow is pointing.



Bumper spike – Toothed stop for holding saw steady against wood. It is labeled “R” in the picture.



Front hand guard – Provides protection against projecting branches and helps prevent left hand from touching the chain if it slips off the handlebar. It also serves as the lever for chain brake activation. It is labeled “J” and “K” in the picture.



Front Handle – Handlebar for the left hand at the front of the saw. Located where the arrow is pointing.



Starter grip – The grip of the starter, for starting the engine. It is labeled “V” in the picture.



Spark plug boot –
Connects the spark plug
with the ignition wire.



Master control lever – Lever for choke control, starting throttle, run and stop positions. It is labeled “X” in the picture.



Fuel filler cap – For opening and closing the fuel tank. Located where the arrow is pointing.



Throttle trigger – Controls the speed of the engine. Located on the rear handle where the arrow is pointing.



Throttle trigger interlock –
Must be depressed before
the throttle trigger can be
activated. It is labeled “D” in
the picture.



Rear handle – The support handle for the right hand, located at the rear of the saw. The throttle trigger interlock and the throttle trigger are located in the rear handle. The rear handle is the part of the saw in the circle.



Rear handle guard – Gives added protection to the operator's right hand. This is the lower portion of the rear handle. It is labeled "E" in the picture.



Clutch – Couples engine to chain sprocket when engine is accelerated beyond idle speed. Located under the sprocket cover.



Anti-vibration system (AVS) – The AVS includes a number of buffers designed to reduce the transmission of vibrations created by the engine and cutting attachment to the operator's hands. The AVS is labeled "O" in the picture.